

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 23 and 45 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant's disclosure to include drawings only show "origin servers", "edge servers" and "parent server", there is no mention or indication of any additional "cache server" and its relationship to the edge, parent or origin servers anywhere in the disclosure. Recent amendments disclose "redirecting clients to a cache server" & "wherein the requested object is served to the client from a cache server other than the particular edge server site", however there is no mention or relationship of a "cache server" where client request is redirected to.

3. Claims 1, 23 & 45 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's disclosure to include drawings only show "origin servers", "edge

servers" and "parent server" and their respective relationship, there is no mention or indication of an additional "cache server" anywhere in the discloser. Recent amendments disclose "redirecting clients to a cache server" however there is no mention or relationship of a "cache server" to the redirection of a client request.

4. Dependent claims 2-15, 66-70, 24-37, 46-58 are also rejected under 35 U.S.C. 112, first paragraph by virtue of their dependence on claims 1, 23 & 45.

5. For examining purposes and under the broadest claim interpretation examiner has interpreted such client object request redirection to a server (I.E another peer edge or origin) that can fulfill such request.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 16 & 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16, section (B) suggest "directing client request to a parent server site whereas last two lines of section (C) says that the request is served from cache server. Similarly, claim 38 portrays the identical scenario.

8. Claims 16 & 38 recites the limitation "cache server" in last two lines of the claims. There is insufficient antecedent basis for this limitation in the claim.

9. For examining purposes and under the broadest claim interpretation examiner has interpreted such client object request redirection to a server (I.E edge or origin) that can fulfill such request.

10. Dependent claims 17-22, 39-44 are also rejected under 35 U.S.C. 112, second paragraph by virtue of their dependence on claims 16 & 38.

Claim Rejections - 35 USC § 101

11. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

12. Claims 23, and 38 are rejected under 35 U.S.C. 101 because they are directed towards a computer program code I.E software that is not embodied on a computer readable storage medium and is therefore directed to non-statutory subject matter. Appropriate amendment in light of the disclosed specification is required to overcome the rejection.

13. Dependent claims 24-37 and 39-44 are also rejected under 35 U.S.C. 101 by virtue of their dependence on independent claims 23 & 38.

Examiner has shown one way to over come this rejection:

14. In claims 23 & 38 incorporate the following language "A computer program product embodied on a non-transient computer-readable storage medium including computer program code having instructions to cause"

15. Additionally, amend the specification on pag.30, paragraph.66 by deleting "carrier wave" as being an example of program product or storage device, because inclusion of "carrier wave" as program product in the specification would make the claim language of independent claims 23 & 38 non-statutory.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 1-3, 5-25, 27-47, 49-58, 66-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jungck (U.S. Pub. No. 2005/0021863) and Sim (U.S. Pub. No. 2003/0031176).

18. As per claims 1, 16, 23, 38 & 45 Jungck disclosed a method/System for managed object replication and delivery in a system comprising a network having one or more parent server sites (paragraphs.19) and one or more edge server sites distinct from said parent server sites(paragraph.25), the method comprising: (A) directing a request by a client for an object to an optimal edge server site in the network (paragraphs. 27, 35 & 63), and if the edge server site does not have the requested

object, then said particular edge server site redirecting the client request to a first caching server; wherein the requested object is served to the client from a cache server other than the particular edge server site {Cache server interpreted as a parent server site to which the request is redirected towards in the network and serving the requested object to the client from the parent server site} (paragraphs.56 & 57). However Jungck did not explicitly disclose if the edge server site does not have the requested object, conditionally replicating the requested object to the edge server site from the parent server site in the network, said replicating being based at least in part on a dynamically measure of popularity of the requested object.

In the same field of endeavor Sim disclosed that if the edge server site does not have the requested object, conditionally replicating {{Sim clearly discloses that content is replicated to the nodes on the network based on popularity of the content therefore there is a presence of "dynamic measurement" which determines content's popularity}} the requested object to the edge server site from the parent server site in the network (paragraph.138), said replicating being based at least in part on a dynamically measure of popularity of the requested object (paragraphs. 47 & 52).

It would have been obvious to one in the ordinary skill in the art at the time the invention was made to have incorporated to replicate an object at the edge server based on its popularity as disclosed by Sim in a method for managed object replication and delivery as disclosed by Jungck in order to make the delivery system more scalable resulting in lower traffic load on the network and providing most relevant & popular content to the requester more quickly making the system more robust and efficient.

19. As per claims 2, 24 & 46 Jungck-Sim disclosed the method of claim 1, wherein redirecting the client request to another server comprises said particular edge server redirecting the client request to a parent server in the network and serving the requested object to the client from the parent server (Jungck, paragraph.57).
20. As per claims 3, 25 & 47 Jungck-Sim disclosed the method of claim 1, wherein if that parent server site does not have the requested object, then recursively redirecting the request until a parent server site in the network having the requested object is reached, and then serving the requested object to the client from the parent server that has the requested object (Jungck, paragraph.57).
21. As per claims 5, 27 & 49 Jungck-Sim disclosed the method of claim 1, wherein directing a request by a client for an object to particular edge server site comprises directing the request by the client for an object to a best or optimal edge server site (Jungck, paragraph.63).
22. As per claims 6, 28 & 50 Jungck-Sim disclosed the method of claim 5, wherein a best or optimal edge server comprises an edge server site selected using at least one of a determination based on a best repeater selector, the likelihood of a copy of the requested object being available at the edge server site, and the bandwidth between the edge server site and the client (Jungck, paragraphs.63 & 71).

23. As per claims 7, 29 & 51 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating the requested object to the particular edge server site comprises replicating the requested object to the particular edge server site from a parent server (Sim, paragraphs, 47 & 52).

24. As per claims 8, 9, 30, 31, 52 & 53 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating comprises: if the requested object is determined to be popular based on said dynamic measure of popularity, and if the requested object is unavailable on parent server sites in the network, then replicating the requested object to a parent server site in the network from an origin server site (Sim, paragraphs, 47 & 52).

25. As per claims 10, 21, 32, 43& 54 Jungck-Sim disclosed the method of claim 1, wherein said dynamic measure of popularity of the requested object is popular (Sim paragraph.47 & 138) is determined using at least a request rate for the requested object (Jungck, paragraph.58).

26. As per claims 11, 12, 17, 18, 33, 34, 39, 40& 55 Jungck-Sim disclosed the system of claim 45, wherein at least one of the plurality of edge servers sites and the plurality of parent server sites delete an object if the object is no longer popular, as

determined based on said dynamic measure of popularity of the requested object (Sim, paragraphs, 47 & 230).

27. As per claims 13, 19, 35, 41, 56 & 61 Jungck-Sim disclosed the method of claim 1, wherein replicating the requested object comprises replicating the requested object in accordance with a dynamic replication threshold (Sim, paragraph, 230).

28. As per claims 14, 20, 36, 42 & 57 Jungck-Sim disclosed the method of claim 1, wherein said step of conditionally replicating the requested object on said particular edge server site comprises: replicating the requested object when said dynamic measure of popularity of the requested object is great than a dynamic threshold popularity and there is enough storage on said particular edge server site to replicate the requested object; otherwise, if there is not enough storage to replicate the requested object, then i) comparing the dynamic measure of popularity of the requested object against a dynamic measure of popularity of a least popular object in the storage, ii) if the dynamic measure of popularity of the requested object exceeds the popularity of the least popular object in the storage, deleting the least popular object from the storage, and then iii) repeating i) and ii) until enough storage is available for the requested object or until the dynamic measure of popularity of the requested object is less than the dynamic measure of popularity of the least popular object in the storage, and iv) replicating the requested object on said particular edge server site if there is enough storage on said particular edge server site (Sim, paragraph, 230).

29. As per claims 15, 22, 37, 44& 58 Jungck-Sim disclosed the method of claim 1, wherein the step of serving the requested object is performed separately from the step of conditionally replicating the requested object (Jungck, paragraphs.63 & 71).
30. As per claim 66 Jungck-Sim disclosed the method of claim 1 wherein the caching server site from which the requested object is served to the client is a peer server site of the particular edge server site (Jungck, paragraph.61)
31. As per claim 67 Jungck-Sim disclosed the method of claim 1 wherein the caching server site from which the requested object is served to the client is the first caching server site (Jungck, paragraph.61).
32. As per claim 68 Jungck-Sim disclosed the method of claim 1 wherein the caching server site from which the requested object is served to the client is a peer of the first caching server site (Jungck, paragraph.61).
33. As per claim 69 Jungck-Sim disclosed the method of claim 1 wherein the step of conditionally replicating the requested object on the particular edge server site replicates the requested object from a peer server site of the particular edge server site (Sim, paragraphs. 47 & 52)..

34. As per claim 70 Jungck-Sim disclosed the method of claim 1 wherein the step of conditionally replicating the requested object on the particular edge server site replicates the requested object from a caching server site (Sim, paragraphs. 47 & 52).

Response to Arguments

35. Applicant's arguments filed 10/21/2009 have been fully considered but they are not persuasive.

36. Applicant argued that the amended claim limitations overcome the applied prior arts.

As to applicant's argument the newly amended claims on one hand further broadened the claimed invention where previously applied prior arts are still applicable and on the other hand invoked rejections under 35 U.S.C. 112, first and second paragraphs.

Please see rejections above.

Conclusion

37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

38. Jacobs et al U.S. 6,732,237 B1 discloses Multi-tier caching system.
39. Challenger et al U.S 6,598,121 B2 discloses system and method for coordinated hierarchical caching and cache replacement.
40. Aviani Jr. et al U.S. 6,594,260 B1 discloses content routing.
41. Singal et al U.S. 6,859,840 B2 discloses prefix caching for media objects.
42. Buddhikot et al U.S. 6,999,988 B2 disclosed method and system for data layout and replacement in distributed streaming caches on the Internet.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ASGHAR BILGRAMI whose telephone number is (571)272-3907. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tonia L.M. Dollinger can be reached on 571-272-4170. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. B./
Examiner, Art Unit 2443

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